MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The REVIEW for January, 1897, is based on 2,748 reports from stations occupied by regular and voluntary observers, classified as follows: 137 from Weather Bureau stations; numerous special river stations; 33 from post surgeons, received through the Surgeon General, U. S. Army; 2,435 from voluntary observers; 96 received through the Southern Pacific Railway Company; 14 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 33 from Canadian stations; 1 from Hawaii; 30 from Mexican stations. International simultaneous observations are received from a few stations and used together with trustworthy newspaper extracts and special reports.

The WEATHER REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the meteorological tables contained in the last section are furnished by Mr. A. J. Henry, Chief of the Division of Records and Meteorological Data. Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada, Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu, and Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico.

CLIMATOLOGY OF THE MONTH.

GENERAL CHARACTERISTICS.

Several severe general storms occurred during the month, the notable ones were that which passed from the Lake Region on the 22d to the Gulf of St. Lawrence on the 26th, and that which passed from Florida on the 26th to New England on the 28th. Although pressures reduced to sea level were very high in the western Canadian Provinces and the Missouri Valley, yet only cold waves but no remarkable blizzards occurred in the Mississippi Valley. Generous snowfall covered the northern portion of the country and the winter wheat is, therefore, in very good condition. An unusual amount of rainfall occurred in southern California where the crops have been correspondingly benefited. Temperature, with severe cold waves, was below normal on the Gulf and south Atlantic coasts, but the cold did considerably less damage to vegetation than was anticipated. Precipitation was deficient in northern California, Washington, and Oregon, but the weather was otherwise favorable for agricultural operations.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The *mean pressures* during the current month were high throughout the ridge extending from the Rocky Mountain plateau region southeast to the Gulf States. They were low over Newfoundland and the Gulf of California. The highest reduced pressures were: In the United States, Lander, 30.35; Idaho Falls, 34.34; Helena, 30.31; in Canada, Battleford, 30.25; Edmonton and Swift Current, 30.22. The lowest were: In the United States, Eastport and Portland, Me., 30.00; Sault Ste. Marie, Marquette, and Fort Canby, 30.02; Tatoosh Island and Phœnix, 30.03; in Canada, St. Johns, 29.84; Sydney, Charlottetown, and Father Point, 29.94.

As compared with the normal for January, the mean pressure was in excess over the Plateau region, southern Slope, Gulf and South Atlantic States. It was deficient in California, Oregon, the northern portion of the Lake Region and the St. Lawrence Valley. The greatest excesses were: In the United States, Helena, 0.19; Lander 0.13; Spokane, 0.11; Idaho Falls and Cheyenne, 0.10; in Canada, Edmonton, 0.09; Swift Current and Qu'Appelle, 0.04; Medicine Hat, 0.03. The greatest deficits were: United States, Roseburg, 0.06; San Diego and Portland, Me., 0.05; Fresno and Marquette, 0.03; Canada, Port Arthur and Farther Point, 0.06; Port Stanley and Quebec, 0.04; Montreal and Calgary, 0.03.

As compared with the preceding month of December, the pressures reduced to sea level show a rise over the northern Plateau and the northern and middle Slope regions, but a fall over the Lake Region, the Atlantic States, California, and the Southern Plateau. The greatest rises were: United States, Havre, 0.22; Helena, 0.18; Medicine Hat, 0.17; Canada, Edmonton, 0.27; Medicine Hat, 0.25; Battleford and Calgary, 0.24. The greatest falls were: United States, Northfield, 0.18; Oswego, 0.11; Sault Ste. Marie, 0.10; Canada, Port Stanley, 0.14; Kingston, 0.12; Montreal, 0.11.

AREAS OF HIGH AND LOW PRESSURE.

By Prof. H. A. HAZEN.

During January, 1897, six high areas and nine lows have been sufficiently well defined to be traced on Charts I and II. The position of the center of high or low for 8 a. m. and 8 p. m. of